CLAIMS

1. Communication system on an IP network (50) between an automation equipment (10) with at least one processing unit capable of executing at least one program (20) to provide automation functions and one or
5 more remote items of equipment (30, 40) executing one or several computer applications, characterized by the fact that the communication system is conform with the WSDL (Web Services Description Language) language in order to provide monitoring, display, control,
10 configuration or programming functions of the automation equipment (10) to the remote equipment (30, 40), and the communication system uses at least one service description document (61) conform with the WSDL language that describes capabilities of one or several
15 WEB services (21, 21') capable of interacting with a program (20) on the automation equipment (10).

2. Communication system according to claim 1, characterized by the fact that a service description document (61) is accessible to remote equipment (30,
20 40) through a URL, URI or IP address through an IP network interface (15, 15', 15").

3. Communication system according to claim 2, characterized by the fact that a WEB service (21, 21') is capable of receiving and sending messages (53)
25 encoded according to at least one communication protocol conform with at least one WSDL binding described in a service description document (61), on the IP network (50).

4. Communication system according to claim 3, characterized by the fact that at least one WSDL binding described in a service description document 61 is conform with the SOAP, HTTP or the MIME protocol.

5. Communication system according to claim 4, characterized by the fact that at least one service description document (61) describes the capacities of a WEB service (21, 21') to present a service conform with a protocol specific to the automation equipment.

6. Communication system according to claim 3, characterized by the fact that at least one WSDL binding described in a service description document (61) is conform with a protocol specific to the automation equipment.

7. Communication system according to claim 3, characterised by the fact that at least one WSDL binding described in a service description document (61) is conform with at least one version of the SOAP protocol encoded in a binary format.

8. Communication system according to claim 1, characterised by the fact that the service description document (61) for automation equipment (10) is memorized in local storage means of a remote equipment (30, 40).

9. Communication system according to claim 2, characterised by the fact that the service description document (61) related to automation equipment (10) is memorized in its storage means (60) located in the automation equipment (10).

10. Communication system according to claim 2, characterised by the fact that the service description

document (61) related to automation equipment (10) is memorised in storage means (60') located in intermediate equipment (70) connected to the automation equipment (10) and to at least one item of remote equipment (30).

11. Communication system according to claim 2, characterised by the fact that the service description document (61) for automation equipment (10) is memorized in remote storage means (60") located on a server (80).

12. Communication system according to claim 2, characterised by the fact that it comprises a service description document generator (62) capable of dynamically building a service description document (61) for automation equipment (10) following a request from a remote equipment (30, 40), and accessible to remote equipment (30, 40) through an URL, URI or IP address through an IP network interface (15, 15', 15").

13. Communication system according to claim 3, characterised by the fact that a WEB service (21) capable of interacting with a program (20) in automation equipment (10) is installed in the automation equipment (10).

14. Communication system according to claim 3, characterised by the fact that a WEB service (21') capable of interacting with a program (20) in automation equipment (10) is installed in intermediate equipment (70) connected to the automation equipment (10) and to at least one item of remote equipment (30, 40).

15. Communication system according to claim 14, characterised by the fact that the WEB service (21') is capable of receiving and sending requests (54, 54') encoded according to one or several protocols specific to the automation equipment.

16. Communication system according to claim 2, characterised by the fact that a discovery document for a service description document (61) related to automation equipment (10) is accessible to remote equipment (30, 40) through an URL, URL or IP address.

17. Communication system according to claim 16, characterised by the fact that the discovery document for a service description document (61) for automation equipment (10) is represented by one or several WEB pages conform with at least one WEB page description language, the said discovery document proposes one or several lists of URL, URL or IP addresses for one or several service description documents (61).

18. Communication system according to claim 16, characterised by the fact that the format of the discovery document of a service description document (61) related to automation equipment (10) is conform with the ADS (Advertisement and Discovery Services) specifications, or DISCO (Discovery) or UDDI (Universal Description, Discovery and Integration) specifications.

19. Communication system according to claim 16, characterised by the fact that the discovery document for a service description document (61) for automation equipment (10) is memorised in storage means (60) located in the automation equipment (10).

20. Communication system according to claim 16, characterised by the fact that the discovery document for a service description document (61) for automation equipment (10) is memorised in storage means (60') located in intermediate equipment (70) connected to the automation equipment (10) and at least one remote equipment (30).

21. Communication system according to claim 16, characterised by the fact that the discovery document for a service description document (61) for automation equipment (10) is memorised in remote storage means (60") located in a server (80).

22. Communication process used in a communication system according to one of the previous claims, characterized in that the process comprises the following steps:

• A first step for the discovery of a WEB service, in which a computer application (31) or a development application (41) executing in remote equipment (30, 40) sends a request (51) on the IP network (50) to receive one or more service description documents (61) conform with the WSDL language and describing the capabilities of one or several WEB services (21, 21'),

• A second generation step in which a service description document 61 conform with the WSDL language is used to automatically or manually generate (52) all or some of a computer application (31) using code generators (43, 44,) or to generate a behaviour in a computer application (31) (by means of WSDL document interpreters (33, 34) such that the computer application (31) on the remote equipment (30)

communicates with a WEB service (21, 21') by means of messages (53) conform with the communication protocol described in the service description document (61).

• A third communication step between a computer application (31) executed on remote equipment (30) and a WEB service (21, 21') on automation equipment (10) on the IP network (50) using messages (53) conform with the communication protocol described in the service description document (61).

23. Communication process according to claim 22, characterised by the fact that during the discovery step, a computer application (31) or a development application (41) may use one or several discovery documents to discover one or several service description documents (61) describing a WEB service (21, 21') related to automation equipment (10).

24. Communication process according to claim 22, characterised by the fact that during the generation step, a development application (41) being executed in a second remote equipment (40) may generate all or some of a computer application (31) locally in the second remote equipment (40) or in a first remote equipment (30) through the IP network (50).